ARTICLE 5

DESIGN AND CONSTRUCTION STANDARDS

5.1 Streets

5.1.1 Location

a. All streets in the subdivision shall be designed so that, in the opinion of the Board, they will provide safe vehicular travel. Due consideration shall also be given by the subdivide to the attractiveness of the street layout in order to obtain the maximum livability and amenity of the subdivision.

b. The proposed streets shall conform to any master plan or study plan as adopted in whole or in part by the Board.

c. Provision satisfactory to the Board shall be made for the proper projection of streets, or for access to adjoining property which is not yet subdivided.

d. Reserve strips prohibiting access to streets or adjoining property shall not be permitted, except where, in the opinion of the Board, such strips shall be in the public interest.

5.1.2 Cross Sections. Cross Sections shall be in accordance with the standards as shown on Plates 1 and 2. The Board may permit a narrower paved roadway if, in its opinion, it will still provide for safe vehicular travel.

5.1.3 Alignment, Grade, Dead End, and Intersections. These shall be accordance with the standards shown in Table 1.

5.1.4 Dead End Streets

a. A dead-end street or dead-end interior drive shall not extend more than 650 feet from: a through public street, or a street or interior drive that intersects with a through public street in at least two places that are not less than 125 feet apart provided such street or interior drive is constructed in accordance with the standards for streets and rights-of-way set forth in the Subdivision Regulations.

b. In the case where an existing through street connects to another public street in two places but that public street is itself a dead-end street, the through street shall be considered to be a dead-end street.

c. Subject to the approval of the Highway Superintendent, Fire Chief and Police, the Planning Board may waive the requirements of Section 5.14.b if a second means of access to a subdivision for emergency vehicles can be provided. Such second means of access must be constructed in a manner suitable for snow removal and other maintenance in order to assure year-round access by emergency vehicles. If this second means of access has a gate or other barrier to restrict general motor vehicle access, there must be an easy means to open said gate or barrier for emergency vehicles.

5.1.5 Site and Earthwork

a. All materials and construction methods used for roadway excavation and embankments shall conform to SECTION 100 of the Standard Specifications (c.f. 2.18)

b. All natural features such as large trees, water courses, scenic points, historic plots and similar community assets shall be preserved. It is the opinion of the Board that this protection and preservation will add to the attractiveness and value of the subdivision.

c. The Applicant shall employ at his own expense an engineer or surveyor to set all lines and grades in a manner satisfactory to the Highway Superintendent.

d. The entire area within the right-of-way lines shall be cleared and grubbed of all stumps, brush, roots, boulders, and like materials. All rock or masonry with a maximum dimension over three inches and within six inches of the top of subgrade shall be removed. Trees intended to be preserved shall be protected by suitable boxes, fenders, of wells as appropriate.

e. All topsoil, defined as fertile, friable, natural material which has demonstrated vegetative growth, shall be removed from within the roadway area, and used within the Subdivision.

f. In cut areas, all unsuitable material such as peat, loam, organic material, silt or clay or any other material that, in the opinion of the Highway Superintendent is considered to be detrimental to the subgrade, shall be removed to the depth and width indicated by him and replaced with Ordinary Borrow conforming to M1.03.0 of the Standard Specifications. Type “a” shall be used within twelve inches of the top subgrade and Type “b” above, placed in 12-inch loose lifts and compacted to ninety-five percent (95%) of maximum density as determined by ASTM Designation 1557-70, Method D.

g. In fill areas, the embankment shall be Ordinary Borrow specified and placed as in (f) above. Loaming and seeding shall conform to ARTICLE 5.5.4.

h. The subgrade shall be shaped to a true surface conforming to the lines and grades indicated on the approved Definitive Plan (cross section and profile) and where original ground, shall be compacted to ninety-five percent (95%), as defined in (f) above, to a depth of six inches. A tolerance of one-half inch (1/2”) above or below finished subgrade will be permitted provided this difference is not maintained over fifty feet and the required crown (cross slope is maintained.

5.1.6 Pavement Structure

a. The pavement structure shall be constructed in accordance with applicable sections of SECTION 400 of the Standard Specifications.

b. Gravel Base Course shall be gravel borrow (M.1.03.0, Type b) in accordance with SECTION 405 of the Standard Specifications. The gravel base shall be raked such that all large stones (not to exceed 4”) are evenly distributed throughout the base to prevent cobbling.

c. The crushed stone base shall consist of washed stone no smaller than one-fourth inch (1/4") diameter and no larger than one and one-half inch (1 ½ ") in diameter.

d. Binder Course. The binder course shall be asphalt concrete in accordance with SECTION 460, Class I, Bituminous Concrete Pavement, Type I-1 (Binder Course Mix) of the Standard Specifications. The binder course should be allowed to winter over one season and should be swept clean prior to the installation of the surface course. If the binder cannot be swept reasonably clean, a tack coat must be applied to ensure proper binding of the two surfaces. The bituminous concrete surface course shall not be installed until such time as all heavy construction is complete. (A leveling course may be required prior to the installation of the surface course.)

e. Surface Course. The surface course shall be asphalt concrete in accordance with SECTION 460, Class I, Bituminous Concrete Pavement, Type I-1 (Top Course Mix) of the Standard Specifications.

5.1.7 Driveways

a. Driveway grades shall begin at the line of the public way and the lot in question.

b. Driveway aprons shall be paved, provided with bituminous concrete berm and so graded to provide positive drainage towards the streets by the developer and/or owner from the edge of the public roadway to the property line.

5.2 Shoulders

Shoulders shall not be allowed in place of sidewalks, curbs, and grass strips shown on Plates 1 and 2 unless permission is specifically granted by the Board. When permitted, they shall be constructed of gravel, in accordance with SECTION 5.1.5.b, covered with 6 inches (6") of loam to the required width. They shall be brought to a finished grade flush with that of the adjacent pavement or curbing.

5.3 Curbing

Bituminous concrete berm shall conform to the materials and construction methods as specified in SECTION 470 of the Standard Specifications and as indicated on Plates 1 and 2. It shall be installed along both edges of all roadways in Type II subdivisions, except at driveways. The full arc length of curves at intersections shall, however, consist of granite curbs, the materials and construction methods of which shall be in accordance with SECTION 500 of the Standard Specifications. The Board may require that it also be installed along one or both sides of all roadways in Type I subdivisions if in the opinion of the Board, it is warranted by the character of the area and pedestrian use. It is recommended that "Cape Cod" style berm be installed where berms are required.

5.4 Sidewalks

5.4.1 Bituminous concrete sidewalks shall conform to the material and construction methods as specified in SECTION 701 of the Standard Specifications and as indicated on Plates 1 and 2.

5.4.2 Sidewalks shall be constructed on both sides of the roadway at the property line on Collector Streets as indicated on Plate 2. Sidewalks may be constructed only on one side of the roadway at the property line on Minor Streets as indicated on Plate 1 unless, in the opinion of the Board, they are not warranted. The Board may waive the sidewalk requirement or require that they be constructed on both

sides of the roadway. When sidewalks are deleted, grass strips shall be extended in their place.

5.4.3 Bituminous concrete sidewalks shall:

a. be laid in 2 course of one and one-half inches (1 ½") inches each to a depth after rolling of three (3) inches;

b. conform to the material requirements of M3.11.000 of the Standard Specifications for Class I, Bituminous Concrete Pavement; and

c. be placed on an eight inch (8") gravel base, except at driveways where it shall be twelve (12") inches, compacted to 95 percent (ASTM Designation 1557-70, Method D) conforming to M1.03.0 Type C of the Standard Specifications.

5.4.4 Cement concrete sidewalks may be required in Type II Subdivisions. The Board may require that the sidewalks be constructed for the total width from the curb line to the R.O.W. line if, in the opinion of the Board, it is warranted by the character of the area and pedestrian traffic.

5.4.5 Cement concrete sidewalks shall:

a. have a finished thickness of 4 inches (4") except at driveways where it shall be 6 inches (6");

b. be an air-entraining Portland cement mix producing from six to eight percent (6 – 8%) air and developing a minimum 28-day compressive strength of 2,500 psi;

c. be placed on an 8-inch gravel base compacted to 95 percent (ASTM Designation 1557-70, Method D) conforming to M1.03.0 Type C of the Standard Specifications;

d. be placed in alternate slabs of 30 feet (30') in length which shall be separated by a transverse expansion joint;

e. be uniformly scored into block units of not more than 35 square feet (35 sq. ft) in area to a depth of at least 1 inch (1"); and

f. shall be reinforced with 6/6 x 10/10 welded steel wire fabric conforming to ASTM Designation A185-70.

5.5 Grass Strips

5.5.1 Grass strips shall be provided as indicated on Plates 1 and 2 between the curb and the sidewalks, where sidewalks are required.

5.5.2 The finished grade of such grass strips shall be a slope of one –half inch per foot (1/2"/ft.) toward the roadway. Where unusual physical land characteristics or topographic conditions exist, the Board may approve the construction of a grass strip of a greater slope with the finished slope not projecting above a plane sloped four horizontal to one vertical upward from the back of the curb or below a plane sloped four horizontal to one vertical downward from the back of the curb.

5.5.3 Immediately following the completion of construction of the sidewalks, shade trees of a species to be approved by the Tree Warden shall be planted along the side lines of the streets, at the location and intervals to be determined by the

Board. Trees shall be protected by suitable boxes, fenders, or wells as appropriate. The Applicant shall be responsible for the health and erectness of these trees until the ways have been accepted by the town. In the event of a waiver of the sidewalk requirement, shade trees shall be planted immediately upon the completion of laying the binder course.

5.5.4 The top 6 inches (6") of grass strips shall consist of good quality loam extending to the right-of-way, screened, raked, and rolled with at least a 100-pound roller to grade. The loam shall be seeded with lawn grass seed applied in sufficient quantity to assure adequate coverage, rolled when the loam is moist. Loaming and seeding shall be in accordance with SECTION 751 and 765 of the Standard Specifications.

5.6 Side Slopes

The area in back of the required grass strips, where no sidewalk is constructed, or in back of the sidewalk where sidewalks are constructed shall be graded to a point where it coincides with the finished grade of abutting lots in such a manner that no portion thereof will project above a plane sloped four horizontal to one vertical. If approved by the Board, this area may be graded in such a manner that no portion shall project above a plan sloped two horizontal to one vertical; however, whenever the depth of cut in the area exceeds 15 feet (15'), or when, in the opinion of the Board, soil conditions warrant special considerations, slope flattening methods such as benching shall be employed and terraced areas provided to intercept runoff. Drainage shall be toward the roadway where possible.

Loaming and seeding shall conform to ARTICLE 5.

5.7 Street Name Signs

Street name signs shall be Standard Topsfield street-name signs provided at the Applicant's expense. Signs showing names of both intersecting streets shall be erected by the Applicant at each street intersection near the inside curb edge. The type and location of street name signs shall be subject to the approval of the Highway Superintendent.

5.8 Bridges

Bridges shall be designed in accordance with the Standards of the Massachusetts Department of Public Works.

5.9 Underground Utility Systems

Underground distribution systems shall be provided for all utility systems both public and private, including water, sanitary sewerage, drainage, electrical, telephone, television and any similar such systems.

5.10 Street Lighting

Street lighting shall be installed if and where required by the Board. Light standards to be used shall be subject to the approval of the Planning Board.

5.11 Fire Alarm and Police Call Boxes

Fire alarm and/or police call boxes shall be provided, if required by the Board acting for the appropriate department. The box(s) shall be placed, installed, and wired as specified by and under the direct supervision of the Town of Topsfield Fire and/or Police Department(s), as appropriate. This shall be done at the expense of the Applicant who shall make necessary arrangements for this installation with the appropriate department(s).

5.12 Utilities

The installation of public utilities shall conform to the standards of the following SECTIONS.

5.12.1 General

a. The Applicant shall employ, at his own expense, an engineer or surveyor to set all lines and grades in a manner satisfactory to the Board.

b. All utility lines shall be installed in the location indicated and with the minimum cover as shown on Plates 1 and 2.

c. The extent of trench open at any one time shall be subject to the requirements of the Highway Superintendent.

d. The width of trench shall be made as narrow as practicable and within 12 inches (12") from the top of pipe or conduit shall not exceed 4/3 diameter of the pipe or conduit plus 18 inches (18").

e. Sheeting, if used, shall be cut off 12 inches (12") above top of pip or conduit.

f. For installation in embankments, the embankment shall be constructed in accordance with ARTICLE 5, SECTION 1.4.f to at least one foot (1') above the top of pipe or conduit and then the pipe or conduit installed as in undisturbed materials.

g. Unsuitable material in trenches shall be removed and replaced in accordance with ARTICLE 5, SECTION 5.1.4.e.

h. All underground utilities shall be tested and approved prior to installation of base course(s) and pavement.

i. All lot connections shall be installed to the right-of-way line, marked or surveyed so as to be easily located in the future.

j. Backfill shall be placed in 12 inch (12") loose lifts and compacted to 95 percent in accordance with ASTM Designation 1557-70, Method D.

5.12.2 Water

a. The Applicant shall connect to the public water system except where it is determined by the Planning Board that such a connection is not feasible or appropriate. Where a connection to the public water system is not feasible or appropriate, the Applicant may install a private on-lot water system for each lot.

b. Water mains and appurtenances, including service connections, shall be installed in conformity with the specifications of the Board of Water Commissioners.

c. Water pipe diameter shall not be less than 8 inches (8"). A larger diameter may be required where, in the opinion of the Board of Water Commissioners, such a size is required for the benefit of the whole system.

d. Hydrants shall be located at each street intersection and not more than 500 feet (500') apart. Each hydrant shall be served directly from the water main.

e. At water main intersections, all lines shall be valved and the maximum spacing between valves on any one main shall not exceed one thousand feet (1,000'), so mains may be isolated for maintenance purposes.

f. All pipelines shall begin combined pressure and leakage tests at the direction of the Topsfield Board of Water Commissioners. The average leakage shall meet the latest ASTM Standards. All potable water lines shall be disinfected according to AWWA Designation C601-68.

g. Private on-lot water systems shall be designed and constructed in accordance with appropriate requirements of the Board of Health of the Town of Topsfield.

5.12.3 Drainage

a. The construction of the drainage system, including methods of construction and quality of materials used, shall be in conformity with the Definitive Plan and SECTION 200 of the Standard Specifications.

b. The design capacity of the drains shall be determined by any computational method based on drainage basin models currently recognized by the civil engineering profession. The Board may require the Applicant to submit drainage capacity estimates derived from more than one model. The engineer shall design the drainage system in accordance with the zoning regulations and the natural drainage boundaries of the total contributing drainage area, using a minimum of a 25-year design frequency storm for Type I subdivisions and a minimum of a 50-year design frequency storm for Type II subdivisions. Where, in the opinion of the Board, flooding would produce property damage or a safety hazard, the design frequency storm shall be increased to 50-year. A 50-year design frequency storm shall be used for all bridge openings or major culverts.

An Applicant shall submit runoff data and calculations computed by a registered civil engineer of the maximum surface drainage which will be shed by the road systems and the area within the subdivision.

c. The drainage system within the subdivision shall be adequate to carry off surface drainage caused by rain, snow and ice without flooding of roads, sidewalks or adjacent property within the subdivision. In situations where collected surface runoff is discharged in large concentrations, the Planning Board shall require the Applicant to undertake a flood impact analysis and backwater analysis using a 50-year design storm to determine probably effects of the discharge and preventative measurers available and/or proposed.

d. The drainage system shall not wrongfully overburden continuous existing drainage systems, either natural or artificial, located outside the subject development, with the result that such off-site drainage systems wrongfully flood or overflow the property of others located either outside or within the subject development.

e. Drainage pipe beneath the roadway shall be reinforced concrete and have a minimum diameter of 12 inches (12”). Joints shall be rubber gasket type. Corrugated metal pipes may be used for drainage outside of the roadway or for culverts under the roadway.

f. Where feasible, methods to utilize the stormwater in artificial recharge operations should be employed, i.e., holding basins, modified streambed, etc. If, in the opinion of the Board such operations or methods are unfeasible or unnecessary, stormwater should be directed to enter the nearest open stream channel which can best accommodate flow. A

masonry, fieldstone or rock headwall shall be constructed at the drain's point of entry or outfall into the channel. Outfalls of diameter in excess of 18 inches (18") shall contain iron bars ('Kidstoppers'). Stormwater shall not be permitted to cross any roadway upon the surface but must be piped underground. Subdrains as shown on Plate 6 shall be installed along the roadway where, in the opinion of the Board, they are necessary to prevent frost action or buildup in volume from high terraced areas. Stormwater runoff shall not be permitted to flow upon the road surface for a longer distance than 300 feet (300') before it enters the underground system.

Catchbasins shall be located on both sides of the roadway on continuous grades at intervals of not more than 300 feet (300'), at all sags in the roadway, and near the corners of the roadway at intersecting streets, to prevent surface water from crossing the intersection. Granite curb inlets conforming to SECTION 500 of the Standard Specifications shall be installed at all roadway catchbasins but shall not be required for area catchbasins. See Plates 3, 4, 5 and 6.

Profiles and cross sections of waterways and drainage lines off the roadways shall be shown as far as necessary to insure that flooding does not occur. These shall be detailed on a scale 4 inches equals 1 foot (4" = 1') vertical.

g. In the event that a subdivision drainage system is to be connected to an off-site drainage facility, the Applicant shall submit estimates of peak flow in that facility prior to and after such connection is completed. Such estimates shall be based on a 25-year design storm except where a 50-year design storm culvert has been proposed. In the case of a man-made off-site drainage system, the Applicant shall provide hydrographs for the connecting tie-in which clearly show the time of concentration of the existing run-off and that of the additional run-off generated by the proposed subdivision.

h. Proper connections shall be made with any existing public drainage system within 300 feet (300') of the subdivision.

i. No open water body or pond shall be filled in and no wet or swampy area shall be filled in unless approval has been obtained in compliance with Chapter 131 of the Massachusetts General Laws and 310 CMR inclusive of all amendments.

j. Where open stream channels exist within a subdivision, adequate provisions shall be made for properly maintaining them or for properly enclosing them, if absolutely necessary. It is the Town's intent to preserve and maintain the natural features of such streams and any development should be planned accordingly.

k. Drainage pipe shall be bedded in compacted screened gravel to a depth of 6 inches (6") below the bottom of the pipe in earth and 12 inches (12") in rock. Gravel bedding shall be carried to the spring line of the pipe. Selected material containing no large boulders shall then be hand placed to an elevation of 1 foot (1') above the top of the pipe and compacted in accordance with ARTICLE 5, SECTION 12.1.j. Mechanical equipment may be used to backfill the trench above this point.

l. Manholes and catchbasins shall be brick or block, and a typical detail of such materials, dimensions, and construction details shall be submitted to

the Highway Superintendent for approval. If approved by the Board, precast or cast-in-place manholes and catchbasins may be used.

m. Drain manholes shall be located at every change in grade or direction of the drainage line, at catchbasin connections, and shall not exceed 300 feet (300') apart in a continuous system. Catch basins shall not be installed within a traveled lane of a public way, nor shall they be installed in front of any driveway entrance.

n. Iron castings for manhole frames and covers and catchbasin frames and grates shall be in accordance with Massachusetts Department of Public Works Standards.

(1) Manhole cover shall have 3-inch lettering to read "DRAIN".

(2) Catchbasin grates shall be Type A-1 or A-3.

5.12.4 Sanitary

a. When a public sewerage system is available, no building permit shall be issued until a Sewer Entrance Permit has been obtained. Individual sewage disposal systems or other means of sewage disposal shall not be approved where a common sanitary sewer is accessible in an abutting way and where permission to enter such a sewer can be obtained from the authority having jurisdiction over it.

b. Private on-lot sewerage systems shall be designed and constructed in accordance with the requirements of the Board of Health of the Town of Topsfield and Articles of the Sanitary Code of the Commonwealth of Massachusetts.

5.12.5 Other Utilities. Other utilities, where necessary, shall be located generally as indicated on Plates 1 and 2. Materials and construction methods shall be in accordance with the requirements of the involved utility company and appropriate Town Department.

5.13 Easements

5.13.1 Utility easements such as water, electric, gas, telephone lines or drainage piping shall be provided where necessary and shall be at least thirty (30) feet wide unless, in the opinion of the Board, a different width is warranted. All such easements shall be located on the Definitive Plan within an accuracy limit prescribed in ARTICLE 4, SECTION 3.3.g.

5.13.2 Where a subdivision is traversed by an open watercourse, drainage way, channel or stream, the Board shall require that there be provided a stormwater easement or drainage right-of-way of adequate width (minimum 30') to conform substantially to the lines of such watercourse, drainage way, channel or stream and to provide for maintenance or other necessary purpose.

5.13.3 Consideration shall be given and may be required by the Board to establish conservation and/or recreation easements (such as trails and foot paths).

5.13.4 Where a temporary turnaround is required, an easement of adequate radius to conform to the standards of Table 1 shall be provided.

5.14 Monuments

5.14.1 Granite or reinforced-concrete monuments 3 feet (3') in length dressed to 6 inches (6") at the top with a pin or a 3/8-inch drill hole in the center, and not less than 6 inches (6") square at the bottom shall be set flush to finish grade as shown on plans.

5.14.2 Monuments shall be installed at all street intersections, at all points of change in direction, or curvature of streets, and at other points as shown in the Definitive Plan and where, in the opinion of the Board, permanent monuments are necessary.

5.14.3 Iron pipe markers set in concrete shall be installed at the intersection of all lot lines with street lines. Iron pipe markers shall be installed at all other lot boundaries at corners and changes in course. The iron pipe shall be three feet (3') long and extended above grade not more than six inches (6") or less than one. In the event that the terrain does not permit the installation of a marker at a lot line change, witness markers may be installed in locations subject to Board approval.

The pipe shall be installed at the time of lot layout. Any pipes disturbed during construction shall be reset.

5.15 Retaining Walls

Retaining walls shall be designed in accordance with the Commonwealth of Massachusetts, Department of Public Works, Bridge Manual including all amendments and shall conform to the application subsections of SECTION 900 of the Standard Specifications.

5.16 Fencing

Fencing shall be required in subdivisions abutting limited or controlled access highways or expressways, or other limited or controlled access roads. Fencing may be required in other areas where physical features require such safety and shall be approved by the Highway Superintendent.

5.17 Guard Rails

Guard rails shall be provided at points of hazard along the roadway such as fixed objects at the pavement edge, high fills, fills on sharp curvature, along watercourses, steep cliffs, along deep ditches in cuts and similar locations as required by the Highway Superintendent. Type and installation of guard rails shall be approved by the Highway Superintendent.

5.18 Open Spaces

Before approval of a plan, the Board may also, in appropriate cases, require the plan to show a park or parks suitably located for playground or recreation purposes or for providing light and air. The park, or parks, shall not be unreasonable in area in relation to the land being subdivided and to the prospective uses of such land. The Board may, by appropriate endorsement on the plan, require that no building be erected upon such park or parks without its approval, for a period of not more than three years.

Pedestrian ways, bikeways, or bridle paths of not less than twenty feet (20') in width may be requested where deemed desirable to provide circulation or access to schools, playgrounds, parks, shops, transportation, open spaces and/or community facilities. Each area reserved for such purpose shall be of suitable area, dimensions, topography, and natural character for the purposes of a park and/or playground. The area or areas shall be so located as to serve adequately all parts of the subdivision as approved by the Board.

The Board may require that the area or areas reserved shall be located and laid out so as to be used in conjunction with similar areas of adjoining subdivisions or of probable subdivisions. Any land so reserved shall be graded to dispose properly of surface water and shall be left in condition for the purpose intended, as required by the Board. Land acquired in this manner shall be compensated for as provided in SECTION 81-Q of Chapter 41 of the General Laws.

5.19 Protection of Natural Features

Due regard must be shown for all natural features, such as trees, watercourses, scenic points, historic spots, and similar community assets which, if preserved, will add attractiveness and value to the community and the subdivision. Where topsoil is stripped from the site, it shall be replaced in accordance with ARTICLE 5, SECTION 1.4.g.

5.20 Tree Planting

5.20.1 Shade trees of species approved by the Tree Warden shall be planted on each side of each street (at least two (2) per lot) in a subdivision, except where the Definitive Plan showed trees to be retained which are healthy and adequate. Such trees shall be located outside of the right-of-way as shown in the Profile and Typical Cross SECTION, approximately at fifty foot (50') intervals and shall be at least twelve feet (12') in height, two inches (2") in caliper measured four feet (4') above the approved grade, and shall be planted each in at least one-half (1/2) cubic yard of topsoil, unless otherwise required by the Tree Warden.

5.20.2 All deciduous street trees shall be clear of any branches from the approved grade level to a point seven feet (7') above ground level.

5.20.3 The developer shall be liable for all trees so planted as to their erectness and good health in accordance with ARTICLE 5, SECTION 5.3.

5.20.4 All cut bankings shall be planted with a low growing shrub and wood chipped to a minimum depth of six inches (6") or seeded with a deep-rooted perennial grass to prevent erosion.

5.21 As-Built Plans

As-built plans showing the location, grades, and other significant information regarding utilities and roads shall be prepared by the Applicant and submitted to the Board within six months following the final approval of the improvements as herein provided. This may be done by submitting revised Mylars or linens of the approved Definitive Plan showing the actual existing as-built conditions.

5.22 Cleaning Up

The entire area must be cleaned up within thirty (30) days of completed construction so as to leave a neat and orderly appearance free from debris and other objectionable materials. All catchbasins shall be properly cleaned out.